Drinking Water Surveillance Program

STOUFFVILLE WELL SUPPLY SYSTEM

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STOUFFVILLE
WELL SUPPLY SYSTEM

DRINKING WATER SURVEILLANCE PROGRAM

ANNUAL REPORT 1989

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EXECUTIVE SUMMARY

DRINKING WATER SURVEILLANCE PROGRAM

STOUFFVILLE WELL SUPPLY
1989 ANNUAL REPORT

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. In 1989, 65 plants were being monitored.

The Stouffville Water Supply is a groundwater source and consists of three wells. Wells 5 and 6 feed two interconnected reservoirs from which water is subsequently pumped to the distribution system and the Stouffville water tower. Well 3 has been brought into use during periods of high water demand only. The only treatment process applied is chlorination. Chlorine is added at the reservoir.

Water samples were taken on a monthly basis at Well 5, Well 6 and the reservoir. The Stouffville Well Supply was sampled, for approximately 180 parameters, monthly during 1989. Parameters were divided into the following groups: Bacteriological, Inorganic and Physical (Laboratory Chemistry, Field Chemistry and Metals) and Organic (Chloroaromatics, Chlorophenols, Pesticides and PCB, Phenolics, Polynuclear Aromatic Hydrocarbons, Specific Pesticides and Volatiles). Chlorophenols and Specific Pesticides were analyzed for in June and November only.

A summary of results is shown in Table A.

Inorganic and Physical parameters were below any applicable health related ODWOs.

Of a total of approximately 110 Organic parameters tested for on a monthly basis, none exceeded health related guidelines.

During 1989 the DWSP sampling results indicated that the Stouffville Well Supply System produced good quality water.

TABLE A

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY

SUMMARY TABLE BY SCAN (1988)

SCAN	RAW 5			RAW 6			TREATED		
	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE
BACTERIOLOGICAL	32	2	6	32	4	12	33	2	6
CHEMISTRY (FLD)	22	22	100	22	22	100	55	54	98
CHEMISTRY (LAB)	231	148	64	231	153	66	231	147	63
METALS	264	116	43	264	113	42	241	99	41
CHLOROAROMATICS	140	0	0	140	0	0	140	1	0
CHLOROPHENOLS	12	0	0	12	0	0	12	0	0
PAH	174	0	0	174	0	0	174	0	0
PESTICIDES & PCB	353	0	0	353	0	0	340	0	0
PHENOLICS	11	4	36	11	3	27	11	1	9
SPECIFIC PESTICIDES	63	0	0	63	0	0	63	0	0
VOLATILES	319	0	0	290	2	0	319	47	14
TOTAL	1621	292		1592	297		1619	351	

NO KNOWN HEALTH RELATED GUIDELINES WERE EXCEEDED

A POSITIVE VALUE DENOTES THAT THE RESULT IS GREATER THAN THE STATISTICAL LIMIT OF DETECTION AND IS QUANTIFIABLE
A '.' INDICATES THAT NO SAMPLE WAS TAKEN

DRINKING WATER SURVEILLANCE PROGRAM

STOUFFVILLE WELL SUPPLY 1989 ANNUAL REPORT

INTRODUCTION

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. In 1989, 65 plants were being monitored.

The DWSP was initiated in Stouffville in the spring of 1987. Annual Reports were published for 1987 and 1988(ISSN 0840-5301).

This report contains information and results for 1989.

In order to accommodate the increasing number of plants on the DWSP and to facilitate the timely completion of the 1989 annual reports, plants with two or more years of published data will receive an abbreviated annual report. This report maintains the same general format as in previous years but does not include a comprehensive discussion of results. For more detail on the parameters analyzed and discussion of results, consult the 1987 and 1988 reports.

PLANT DESCRIPTION

The Stouffville Well Supply is a groundwater source and consists of three wells. Wells 5 and 6 feed two interconnected reservoirs from which water is subsequently pumped to the distribution system and the Stouffville water tower. Well 3 has been brought into use during periods of high water demand only. The water in the reservoir is chlorinated prior to distribution to the consumer. The DWSP samples raw water from Well 5 and Well 6 and treated water from the reservoir.

The Stouffville Water Supply has a design capacity of 5.4 x 1000 m^3/day and serves a population of approximately 5,500. The treated reservoir has daily flows ranging from 1.0 x 1000m^3/day to 3.8 x 1000m^3/day.

The location is shown in Figure 1. General information is presented in Table 1.

SAMPLING AND ANALYSIS

The Stouffville Well Supply locations were sampled for approximately 180 parameters on a monthly basis in 1989. The Specific Pesticides and Chlorophenols scans were sampled for in June and November only. As of August the triazine pesticides were

only analyzed in the raw and treated water. Laboratory analysis was conducted at the Ministry of the Environment facilities in Rexdale, Ontario.

RESULTS

Field measurements were recorded on the day of sampling and were entered onto the DWSP data base as submitted by plant personnel.

Table 3 contains information on the sample day retention time, flow rate and treatment chemicals used and their associated dosages.

Table 4 is a summary break-down of the number of water samples analyzed for by parameter and by water type. The number of times that a positive or trace result was detected is also reported.

Positive denotes that the result is greater than the statistical limit of detection established by the Ministry of the Environment (MOE) laboratory staff and is quantifiable. Trace (<T) denotes that the level measured is greater than the lowest value detectable by the method but lies so close to the detection limit that it cannot be confidently quantified.

Table 5 presents the results for parameters detected on at least one occasion.

TABLE 1

DRINKING WATER SURVEILLANCE PROGRAM ANNUAL REPORT

GENERAL INFORMATION

STOUFFVILLE WELL SUPPLY

LOCATION:	STOUFFVILLE, ONTARIO
SOURCE:	RAW WATER SOURCE - GROUND WATER
RATED CAPACITY:	5.41 (1000 M^3/DAY)
OPERATION:	REGIONAL MUNICIPALITY OF YORK
TECHNICAL SUPERINTENDENT:	J. SIBBALD
MINISTRY REGION:	CENTRAL
MOE CONTACT:	W. MAITLAND

MUNICIPALITY SERVED	POPULATION
TOWN OF STOUFFVILLE	5,500

FIGURE 1

DRINKING WATER SURVEILLANCE PROGRAM

SITE LOCATION MAP

STOUFFVILLE WELL SUPPLY SYSTEM

Table 6 lists all parameters analyzed in the DWSP.

Associated guidelines and detection limits are also supplied on both tables. Parameters are listed alphabetically within each scan.

DISCUSSION

General

Water quality is judged by comparison with the Ontario Drinking Water Objectives (ODWOs) as defined in the 1984 publication (ISBN 0-7743-8985-0). The Province of Ontario has health related and aesthetic objectives for 49 parameters, these are currently under review. When an ODWO is not available guidelines/limits from other agencies are consulted. The Parameters Listing System (PALIS) recently published (ISBN 0-7729-4461-X) by the MOE catalogues and keeps current over 1750 guidelines for 650 parameters from agencies throughout the world.

Many of the compounds detected are naturally occurring or are treatment by-products.

IN THIS REPORT, DISCUSSION IS LIMITED TO THE TREATED AND DISTRIBUTED WATER AND ADDRESSES ONLY THOSE PARAMETERS WITH CONCENTRATIONS ABOVE GUIDELINE VALUES AND

ORGANICS WITH DETECTED POSITIVE RESULTS.

Results for treated and distributed water indicate that no applicable health related guidelines were exceeded.

Inorganic and Physical Parameters

Hardness

The ODWO recommend a hardness level of between 80 and 100 mg/L as calcium carbonate ($CaCO_3$) for domestic waters, to provide an acceptable balance between corrosion and encrustation. Water supplies with a hardness greater than 200 mg/L are considered poor and would possess a tendency to form scale deposits and result in excessive soap consumption. The two well sources and water from the reservoir had hardness values above 200 mg/L as $CaCO_3$.

Conductivity

Some European Economic Community (EEC) guidelines for parameters related to hardness ie. Conductivity were also exceeded in all samples as a result of the high hardness levels.

Organic Parameters

Hexachlorobenzene

Hexachlorobenzene was detected in the April treated water sample at a level of 12.0 µg/L. The United States Environmental Protection

Agency's Ambient Water Quality Guideline for hexachlorobenzene is 1900 µg/L.

Ethylbenzene

Ethylbenzene was detected in the May treated water sample at 2.3 µg/L. Health and Welfare Canada use an Aesthetic Objective (AO) of 2.4 µg/L for ethylbenzene in drinking water.

Xylenes

Xylenes were detected in the May treated water sample, meta-Xylene at 8.6 µg/L and ortho-Xylene at 3.65 µg/L. Health and Welfare Canada use an AO of 300 µg/L for Total Xylenes in drinking water.

Trihalomethanes

Trihalomethanes (THMs) are acknowledged to be produced during the water treatment process and will always occur in chlorinated waters. THMs are comprised of Chloroform, Chlorodibromomethane and Dichlorobromomethane. Bromoform occurs occasionally. Results are reported for the individual compounds as well as for total THMs. All Total THM occurrences, ranging from 5.75 to 27.3 µg/L, were well below the ODWO of 350 µg/L.

CONCLUSIONS

The Stouffville Well Supply for the sample year of 1989 was of good quality.

No health related guidelines, for organic or inorganic parameters, were exceeded during 1989.

TABLE 3

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY SAMPLE DAY CONDITIONS FOR 1989

SAMPLE DAY CONDITIONS			TREATMENT CHEMICAL DOSAGES (MG/L)
DATE	*DELAY TIME(HRS)	FLOW (1000 M3)	POST-CHLORINATION CHLORINE
JAN 17	24.0	2.5	01.01
FEB 21	24.0	3.8	01.20
MAR 21	24.0	2.8	00.97
APR 18	24.0	1.8	00.88
MAY 16	24.0	1.0	00.79
JUN 20	24.0	2.4	00.85
JUL 18	24.0	3.6	01.07
AUG 21	24.0	2.6	00.94
SEP 19	24.0	1.7	00.97
OCT 17	24.0	1.8	00.97
NOV 21	24.0	2.2	01.01

* THE DELAY TIME BETWEEN THE RAW AND TREATED WATER SAMPLING, SHOULD ESTIMATE THE RETENTION TIME

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW 5 TOTAL	RAW 5 POSITIVE	RAW 5 TRACE	RAW 6 TOTAL	RAW 6 POSITIVE	RAW 6 TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE
BACTERIOLOGICAL	FECAL COLIFORM MF	10	0	0	10	0	0	.	.	.
	STANDRD PLATE CNT MF	.	.	.	.	.	.	11	0	0
	TOTAL COLIFORM MF	11	0	0	11	1	0	11	0	0
	T COLIFORM BCKGRD MF	11	2	0	11	3	0	11	2	0
*TOTAL SCAN BACTERIOLOGICAL		32	2	0	32	4	0	33	2	0
*TOTAL GROUP BACTERIOLOGICAL		32	2	0	32	4	0	33	2	0
CHEMISTRY (FLD)	FLD CHLORINE (COMB)	.	.	.	.	.	.	11	10	0
	FLD CHLORINE FREE	.	.	.	.	.	.	11	11	0
	FLD CHLORINE (TOTAL)	.	.	.	.	.	.	11	11	0
	FLD PH	11	11	0	11	11	0	11	11	0
	FLD TEMPERATURE	11	11	0	11	11	0	11	11	0
*TOTAL SCAN CHEMISTRY (FLD)		22	22	0	22	22	0	55	54	0
CHEMISTRY (LAB)	ALKALINITY	11	11	0	11	11	0	11	11	0
	CALCIUM	11	11	0	11	11	0	11	11	0
	CYANIDE	11	0	0	11	0	0	11	0	0
	CHLORIDE	11	11	0	11	11	0	11	11	0
	COLOUR	11	0	6	11	1	8	11	0	5
	CONDUCTIVITY	11	11	0	11	11	0	11	11	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW 5 TOTAL	RAW 5 POSITIVE	RAW 5 TRACE	RAW 6 TOTAL	RAW 6 POSITIVE	RAW 6 TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE
CHEMISTRY (LAB)	FLUORIDE	11	2	9	11	6	5	11	3	8
	HARDNESS	11	11	0	11	11	0	11	11	0
	IONCAL	11	11	0	11	11	0	11	11	0
	LANGELIERS INDEX	11	11	0	11	11	0	11	11	0
	MAGNESIUM	11	11	0	11	11	0	11	11	0
	SODIUM	11	11	0	11	11	0	11	11	0
	AMMONIUM TOTAL	11	1	1	11	0	2	11	0	1
	NITRITE	11	1	8	11	1	9	11	0	3
	TOTAL NITRATES	11	11	0	11	11	0	11	11	0
	NITROGEN TOT KJELD	11	1	10	11	2	9	11	1	10
	PH	11	11	0	11	11	0	11	11	0
	PHOSPHORUS FIL REACT	11	0	4	11	0	6	11	0	8
	PHOSPHORUS TOTAL	11	1	6	11	1	6	11	1	7
	SULPHATE	11	11	0	11	11	0	11	11	0
	TURBIDITY	11	10	1	11	10	1	11	10	1
*TOTAL SCAN CHEMISTRY (LAB)		231	148	45	231	153	46	231	147	43
METALS	SILVER	11	0	2	11	0	3	10	0	4
	ALUMINUM	11	11	0	11	11	0	10	10	0
	ARSENIC	11	0	9	11	0	8	10	0	9
	BARIUM	11	11	0	11	11	0	10	10	0
	BORON	11	11	0	11	9	2	10	9	1

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW 5 TOTAL	RAW 5 POSITIVE	RAW 5 TRACE	RAW 6 TOTAL	RAW 6 POSITIVE	RAW 6 TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE
METALS	BERYLLIUM	11	0	10	11	0	9	10	0	9
	CADMIUM	11	0	3	11	0	2	10	0	1
	COBALT	11	0	5	11	0	5	10	0	5
	CHROMIUM	11	11	0	11	11	0	10	9	1
	COPPER	11	0	11	11	0	11	10	0	10
	IRON	11	0	2	11	0	2	10	0	1
	MERCURY	11	0	5	11	0	5	11	0	5
	MANGANESE	11	6	4	11	5	6	10	5	5
	MOLYBDENUM	11	7	4	11	11	0	10	7	3
	NICKEL	11	2	2	11	2	1	10	2	1
	LEAD	11	4	6	11	2	6	10	1	8
	ANTIMONY	11	11	0	11	11	0	10	10	0
	SELENIUM	11	0	4	11	0	5	10	0	7
	STRONTIUM	11	11	0	11	11	0	10	10	0
	TITANIUM	11	11	0	11	11	0	10	10	0
	THALLIUM	11	0	5	11	0	5	10	0	3
	URANIUM	11	11	0	11	11	0	10	10	0
	VANADIUM	11	0	11	11	0	11	10	0	10
	ZINC	11	9	2	11	7	4	10	6	4
*TOTAL SCAN METALS		264	116	85	264	113	85	241	99	87
*TOTAL GROUP INORGANIC & PHYSICAL		517	286	130	517	288	131	527	300	130
CHLOROAROMATICS	HEXACHLOROBUTADIENE	10	0	0	10	0	0	10	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW 5 TOTAL	RAW 5 POSITIVE	RAW 5 TRACE	RAW 6 TOTAL	RAW 6 POSITIVE	RAW 6 TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE
CHLOROAROMATICS	123 TRICHLOROBENZENE	10	0	0	10	0	0	10	0	0
	1234 T-CHLOROBENZENE	10	0	0	10	0	0	10	0	0
	1235 T-CHLOROBENZENE	10	0	0	10	0	0	10	0	0
	124 TRICHLOROBENZENE	10	0	0	10	0	0	10	0	0
	1245 T-CHLOROBENZENE	10	0	0	10	0	0	10	0	0
	135 TRICHLOROBENZENE	10	0	0	10	0	0	10	0	0
	HCB	10	0	0	10	0	0	10	0	0
	HEXACHLOROETHANE	10	0	0	10	0	0	10	1	0
	OCTACHLOROSTYRENE	10	0	0	10	0	0	10	0	0
	PENTACHLOROBENZENE	10	0	0	10	0	0	10	0	0
	236 TRICHLOROTOLUENE	10	0	0	10	0	0	10	0	0
	245 TRICHLOROTOLUENE	10	0	0	10	0	0	10	0	0
	26A TRICHLOROTOLUENE	10	0	0	10	0	0	10	0	0
*TOTAL SCAN CHLOROAROMATICS		140	0	0	140	0	0	140	1	0
CHLOROPHENOLS	234 TRICHLOROPHENOL	2	0	0	2	0	0	2	0	0
	2345 T-CHLOROPHENOL	2	0	0	2	0	0	2	0	0
	2356 T-CHLOROPHENOL	2	0	0	2	0	0	2	0	0
	245-TRICHLOROPHENOL	2	0	0	2	0	0	2	0	0
	246-TRICHLOROPHENOL	2	0	0	2	0	0	2	0	0
	PENTACHLOROPHENOL	2	0	0	2	0	0	2	0	0
*TOTAL SCAN CHLOROPHENOLS		12	0	0	12	0	0	12	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW 5 TOTAL	RAW 5 POSITIVE	RAW 5 TRACE	RAW 6 TOTAL	RAW 6 POSITIVE	RAW 6 TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE
PAH	PHENANTHRENE	11	0	0	11	0	0	11	0	0
	ANTHRACENE	11	0	0	11	0	0	11	0	0
	FLUORANTHENE	11	0	0	11	0	0	11	0	0
	PYRENE	11	0	0	11	0	0	11	0	0
	BENZO(A)ANTHRACENE	11	0	0	11	0	0	11	0	0
	CHRYSENE	11	0	0	11	0	0	11	0	0
	DIMETH. BENZ(A)ANTHR	3	0	0	3	0	0	3	0	0
	BENZO(E) PYRENE	11	0	0	11	0	0	11	0	0
	BENZO(B) FLUORANTHEN	11	0	0	11	0	0	11	0	0
	PERYLENE	11	0	0	11	0	0	11	0	0
	BENZO(K) FLUORANTHEN	11	0	0	11	0	0	11	0	0
	BENZO(A) PYRENE	6	0	0	6	0	0	6	0	0
	BENZO(G,H,I) PERYLEN	11	0	0	11	0	0	11	0	0
	DIBENZO(A,H) ANTHRAC	11	0	0	11	0	0	11	0	0
	INDENO(1,2,3-C,D) PY	11	0	0	11	0	0	11	0	0
	BENZO(B) CHRYSENE	11	0	0	11	0	0	11	0	0
	CORONENE	11	0	0	11	0	0	11	0	0
*TOTAL SCAN PAH		174	0	0	174	0	0	174	0	0
PESTICIDES & PCB	ALDRIN	10	0	0	10	0	0	10	0	0
	ALPHA BHC	10	0	1	10	0	0	10	0	0
	BETA BHC	10	0	0	10	0	0	10	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW 5			RAW 6			TREATED		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
PESTICIDES & PCB	LINDANE	10	0	0	10	0	0	10	0	0
	ALPHA CHLORDANE	10	0	0	10	0	0	10	0	0
	GAMMA CHLORDANE	10	0	0	10	0	0	10	0	0
	DIELDRIN	10	0	0	10	0	0	10	0	0
	METHOXYCHLOR	10	0	0	10	0	0	10	0	0
	ENDOSULFAN 1	10	0	0	10	0	0	10	0	0
	ENDOSULFAN II	10	0	0	10	0	0	10	0	0
	ENDRIN	10	0	0	10	0	0	10	0	0
	ENDOSULFAN SULPHATE	10	0	0	10	0	0	10	0	0
	HEPTACHLOR EPOXIDE	10	0	0	10	0	0	10	0	0
	HEPTACHLOR	10	0	0	10	0	0	10	0	0
	MIREX	10	0	0	10	0	0	10	0	0
	OXYCHLORDANE	10	0	0	10	0	0	10	0	0
	OPDDT	10	0	0	10	0	0	10	0	0
	PCB	10	0	0	10	0	0	10	0	0
	DDD	10	0	0	10	0	0	10	0	0
	PPDDE	10	0	0	10	0	0	10	0	0
	PPDDT	10	0	0	10	0	0	10	0	0
	AMETRINE	11	0	0	11	0	0	10	0	0
	ATRAZINE	11	0	0	11	0	0	10	0	0
	ATRATONE	11	0	0	11	0	0	10	0	0
	CYANAZINE (BLADEX)	11	0	0	11	0	0	10	0	0
	D-ETHYL ATRAZINE	11	0	0	11	0	0	10	0	0
	D-ETHYL SIMAZINE	11	0	0	11	0	0	10	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW 5			RAW 6			TREATED		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
PESTICIDES & PCB	PROMETONE	11	0	0	11	0	0	10	0	0
	PROPAZINE	11	0	0	11	0	0	10	0	0
	PROMETRYNE	11	0	0	11	0	0	10	0	0
	METRIBUZIN (SENCOR)	11	0	0	11	0	0	10	0	0
	SIMAZINE	11	0	0	11	0	0	10	0	0
	ALACHLOR (LASSO)	11	0	0	11	0	0	10	0	0
	METOLACHLOR	11	0	0	11	0	0	10	0	0
*TOTAL SCAN PESTICIDES & PCB		353	0	1	353	0	0	340	0	0
PHENOLICS	PHENOLICS	11	4	5	11	3	3	11	1	3
*TOTAL SCAN PHENOLICS		11	4	5	11	3	3	11	1	3
SPECIFIC PESTICIDES	TOXAPHENE	10	0	0	10	0	0	10	0	0
	2,4,5-T	2	0	0	2	0	0	2	0	0
	2,4-D	2	0	0	2	0	0	2	0	0
	2,4-DB	2	0	0	2	0	0	2	0	0
	2,4 D PROPIONIC ACID	2	0	0	2	0	0	2	0	0
	DICAMBA	2	0	0	2	0	0	2	0	0
	PICHLORAM	0	0	0	0	0	0	0	0	0
	SILVEX	2	0	0	2	0	0	2	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW 5 TOTAL	RAW 5 POSITIVE	RAW 5 TRACE	RAW 6 TOTAL	RAW 6 POSITIVE	RAW 6 TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE
SPECIFIC PESTICIDES	DIAZINON	2	0	0	2	0	0	2	0	0
	DICHLOROVOS	2	0	0	2	0	0	2	0	0
	CHLORPYRIFOS	2	0	0	2	0	0	2	0	0
	ETHION	2	0	0	2	0	0	2	0	0
	AZINPHOS-METHYL	0	0	0	0	0	0	0	0	0
	MALATHION	2	0	0	2	0	0	2	0	0
	MEVINPHOS	2	0	0	2	0	0	2	0	0
	METHYL PARATHION	2	0	0	2	0	0	2	0	0
	METHYLTRITHION	2	0	0	2	0	0	2	0	0
	PARATHION	2	0	0	2	0	0	2	0	0
	PHORATE	2	0	0	2	0	0	2	0	0
	RELDAN	2	0	0	2	0	0	2	0	0
	RONNEL	2	0	0	2	0	0	2	0	0
	AMINOCARB	0	0	0	0	0	0	0	0	0
	BENOMYL	1	0	0	1	0	0	1	0	0
	BUX	0	0	0	0	0	0	0	0	0
	CARBOFURAN	2	0	0	2	0	0	2	0	0
	CICP	2	0	0	2	0	0	2	0	0
	DIALLATE	2	0	0	2	0	0	2	0	0
	EPTAM	2	0	0	2	0	0	2	0	0
	IPC	2	0	0	2	0	0	2	0	0
	PROPOXUR	2	0	0	2	0	0	2	0	0
	CARBARYL	2	0	0	2	0	0	2	0	0
	BUTYLATE	2	0	0	2	0	0	2	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW 5 TOTAL	RAW 5 POSITIVE	RAW 5 TRACE	RAW 6 TOTAL	RAW 6 POSITIVE	RAW 6 TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE
*TOTAL SCAN SPECIFIC PESTICIDES		63	0	0	63	0	0	63	0	0
VOLATILES	BENZENE	11	0	0	10	0	0	11	0	0
	TOLUENE	11	0	1	10	0	2	11	0	5
	ETHYLBENZENE	11	0	4	10	1	3	11	1	2
	P-XYLENE	11	0	0	10	0	0	11	0	0
	M-XYLENE	11	0	1	10	0	0	11	1	0
	O-XYLENE	11	0	1	10	1	1	11	1	0
	STYRENE	11	0	7	10	0	8	11	0	3
	1,1 DICHLOROETHYLENE	11	0	0	10	0	0	11	0	0
	METHYLENE CHLORIDE	11	0	0	10	0	0	11	0	0
	T1,2DICHLOROETHYLENE	11	0	0	10	0	0	11	0	0
	1,1 DICHLOROETHANE	11	0	0	10	0	0	11	0	0
	CHLOROFORM	11	0	0	10	0	0	11	10	1
	111, TRICHLOROETHANE	11	0	1	10	0	3	11	0	1
	1,2 DICHLOROETHANE	11	0	0	10	0	0	11	0	0
	CARBON TETRACHLORIDE	11	0	0	10	0	0	11	0	0
	1,2 DICHLOROPROPANE	11	0	0	10	0	0	11	0	0
	TRICHLOROETHYLENE	11	0	0	10	0	0	11	0	0
	DICHLOROBROMOMETHANE	11	0	0	10	0	0	11	11	0
	112 TRICHLOROETHANE	11	0	0	10	0	0	11	0	0
	CHLORODIBROMOMETHANE	11	0	0	10	0	0	11	11	0
	T-CHLOROETHYLENE	11	0	0	10	0	0	11	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE

SUMMARY TABLE OF RESULTS (1989)

SCAN	PARAMETER	RAW 5			RAW 6			TREATED		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
VOLATILES	BROMOFORM	11	0	0	10	0	0	11	1	10
	1122 T-CHLOROETHANE	11	0	0	10	0	0	11	0	0
	CHLOROBENZENE	11	0	0	10	0	0	11	0	0
	1,4 DICHLOROBENZENE	11	0	0	10	0	0	11	0	0
	1,3 DICHLOROBENZENE	11	0	0	10	0	0	11	0	0
	1,2 DICHLOROBENZENE	11	0	0	10	0	0	11	0	0
	ETHLYENE DIBROMIDE	11	0	0	10	0	0	11	0	0
	TOTL TRIHALOMETHANES	11	0	0	10	0	0	11	11	0
*TOTAL SCAN VOLATILES		319	0	15	290	2	17	319	47	22
*TOTAL GROUP ORGANIC		1072	4	21	1043	5	20	1059	49	25
TOTAL		1621	292	151	1592	297	151	1619	351	155

KEY TO TABLE 5 and 6

A ONTARIO DRINKING WATER OBJECTIVES (ODWO)
1. Maximum Acceptable Concentration (MAC)
1+. MAC for Total Trihalomethanes
1*. MAC for Bacteriological Analyses
Poor water quality is indicated when :
- total coliform counts > 0 < 5
- P/A Bottle Test is present after 48 hours
- Aeromonas organisms are detected in more than 25% of samples in a single submission or in successive submissions from the same sampling site
- Pseudomonas Aeruginosa, Staphylococcus Aureus and members of the Fecal Streptococcus group should not be detected in any sample
- Standard Plate Count should not exceed 500 organisms per ml at 35 ^{0}C within 48 hours

2. Interim Maximum Acceptable Concentration (IMAC)
3. Maximum Desirable Concentration (MDC)
4. Aesthetic or Recommended Operational Guideline
- hardness levels between 80 and 100 mg/L as calcium carbonate are considered to provide an acceptable balance between corrosion and incrustation, water supplies with a hardness >200 mg/L are considered poor and those in excess of 500 mg/L are unacceptable.

B HEALTH & WELFARE CANADA (H&W)
1. Maximum Acceptable Concentration (MAC)
2. Proposed MAC
3. Interim MAC
4. Aesthetic Objective (AO) (for xylenes, a total)

C WORLD HEALTH ORGANIZATION (WHO)
1. Guideline Value (GV)
2. Tentative GV
3. Aesthetic GV

D US ENVIRONMENTAL PROTECTION AGENCY (EPA)
1. Maximum Contaminant Level (MCL)
2. Suggested No-Adverse Effect Level (SNAEL)
3. Lifetime Health Advisory
4. EPA Ambient Water Quality Criteria
5. Maximum Contaminant Level Goal (MCLG)

F EUROPEAN ECONOMIC COMMUNITY (EEC)
1. Health Related Guideline Level
2. Aesthetic Guideline Level
3. Maximum Admissable Concentration (MADC)

G CALIFORNIA STATE DEPARTMENT OF HEALTH-GUIDELINE VALUE

H USSR MAXIMUM PERMISSIBLE CONCENTRATION

I NEW YORK STATE AMBIENT WATER GUIDELINE

N/A NONE AVAILABLE

INTERPRETATION OF DATA

The interpretation of analytical results that are obtained from measurements near the limit of detection of the measurement process is subject to greater uncertainty than those at higher concentrations. The principle areas of concern relate to whether the substance has actually been detected, whether it has been properly identified, and whether it is an artifact of the measurement process. In other words, false positives can be caused by the instrumentation or the test procedures used, when in fact these compounds are not present in the sample.

There are several methods to treat data from such measurements:
1. Exclude the low-level data because of this uncertainty factor. However, studies of long-term environmental trends and modelling may be adversely affected by exclusion of such data.
2. Qualify these data so the user is aware of the greater uncertainty associated with their use.

For the Drinking Water Surveillance Program, measurements near the limit of detection of the measurement process are reported qualified by the code "<T". Results quantified by "W" indicate a zero measurement. These results are reported for purposes of modelling and long-term trend analysis and no significance should be attributed to a single determination of a substance below "T" (a single determination may well be a false positive). Repeat analysis or additional data are needed before it can be stated with certainty that the substance in question was truly present. On the other hand, it is less likely that repeated detection of a substance at or near the limit of detection at a specific location is solely due to an artifact in the measurement system, and more likely represents a true positive. However the average of such data is still only an estimate of the amount of substance present subject to the possible biases of the method used.

LABORATORY RESULTS, REMARK DESCRIPTIONS

.	No Sample Taken
BDL	Below Minimum Measurable Amount
<T	Greater Than Detection Limit But Not Confident (SEE INTERPRETATION OF RESULTS ABOVE)
>	Results Are Greater Than The Upper Limit
<=>	Approximate Result
!AW	No Data: Analysis Withdrawn
!CR	No Data: Could Not Confirm By Reanalysis
!CS	No Data: Contamination Suspected
!IL	No Data: Sample Incorrectly Labelled
!IP	No Data: Insufficient Preservative
!IS	No Data: Insufficient Sample

!LA	No Data: Laboratory Accident
!LD	No Data: Test Queued After Sample Discarded
!NA	No Data: No Authorization To Perform Reanalysis
!NP	No Data: No Procedure
!NR	No Data: Sample Not Received
!OP	No Data: Obscured Plate
!QU	No Data: Quality Control Unacceptable
!PE	No Data: Procedural Error - Sample Discarded
!PH	No Data: Sample pH Outside Valid Range
!RE	No Data: Received Empty
!RO	No Data: See Attached Report (no numeric results)
!SM	No Data: Sample Missing
!SS	No Data: Send Separate Sample Properly Preserved
!UI	No Data: Indeterminant Interference
!TX	No Data: Time Expired
A3C	Approximate, Total Count Exceeded 300 Colonies
APL	Additional Peak, Large, Not Priority Pollutant
APS	Additional Peak, Less Than, Not Priority Pollutant
CIC	Possible Contamination, Improper Cap
CRO	Calculated Result Only
PPS	Test Performed On Preserved Sample
RMP	P and M-Xylene Not Separated
RRV	Rerun Verification
RVU	Reported Value Unusual
SPS	Several Peaks, Small, Not Priority Pollutant
UCR	Unreliable: Could Not Confirm By Reanalysis
UCS	Unreliable: Contamination Suspected
UIN	Unreliable: Indeterminant Interference
XP	Positive After X Number of Hours
T# (T06)	Result Taken After # Hours

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY 1989

	RAW 5	RAW 6	TREATED	
BACTERIOLOGICAL				
FECAL COLIFORM MF (CT/100ML)		DET'N LIMIT = 0		GUIDELINE = 0 (A1)
JAN	0 T06	0 R48	.	
FEB	0 T06	0 T06	.	
MAR	0 T06	0 T06	.	
APR	0 T06	0 T06	.	
MAY	0	0	.	
JUN	0	0	.	
JUL	0	0	.	
AUG	0	0	.	
SEP	ILA	ILA	.	
OCT	0	0	.	
NOV	0	0	.	
STANDRD PLATE CNT MF (CT/ML)		DET'N LIMIT = 0		GUIDELINE = 500/ML (A1)
JAN	.	.	4 <=>	
FEB	.	.	6 <=>	
MAR	.	.	3 <=>	
APR	.	.	0 <=>	
MAY	.	.	0 <=>	
JUN	.	.	0 <=>	
JUL	.	.	2 <=>	
AUG	.	.	2 <=>	
SEP	.	.	2 <=>	
OCT	.	.	3 <=>	
NOV	.	.	4 <=>	
TOTAL COLIFORM MF (CT/100ML)		DET'N LIMIT = 0		GUIDELINE = 5/100ML(A1)
JAN	0 T06	0 T06	0 T06	
FEB	0 T06	0 T06	0 T06	
MAR	0 T06	0 T06	0 T06	
APR	0 T06	0 T06	0 T06	
MAY	0	0	0	
JUN	0 A3C	0 A3C	0	
JUL	0	0	0	
AUG	0	0	0	
SEP	0	0	0	
OCT	0	0	0	
NOV	0	1	0	
T COLIFORM BCKGRD MF (CT/100ML)		DET'N LIMIT = 0		GUIDELINE = N/A
JAN	0 T06	0 T06	0 T06	
FEB	1 T06	0 T06	0 T06	
MAR	0 T06	0 T06	0 T06	
APR	0 T06	0 T06	0 T06	
MAY	0	0	0	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY 1989

	RAW 5	RAW 6	TREATED
JUN	2400 >	2400 >	1
JUL	0	0	0
AUG	0	0	1
SEP	0	1	0
OCT	0	0	0
NOV	0	11	0

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY 1989

	RAW 5	RAW 6	TREATED	
CHEMISTRY (FLD)				
FLD CHLORINE (COMB) (MG/L)			DET'N LIMIT = N/A	GUIDELINE = N/A
JAN	.	.	.100	
FEB	.	.	.200	
MAR	.	.	.200	
APR	.	.	.200	
MAY	.	.	.200	
JUN	.	.	.200	
JUL	.	.	.000	
AUG	.	.	.100	
SEP	.	.	.200	
OCT	.	.	.100	
NOV	.	.	.100	
FLD CHLORINE FREE (MG/L)			DET'N LIMIT = N/A	GUIDELINE = N/A
JAN	.	.	.800	
FEB	.	.	1.000	
MAR	.	.	.700	
APR	.	.	.700	
MAY	.	.	.700	
JUN	.	.	.800	
JUL	.	.	1.200	
AUG	.	.	.700	
SEP	.	.	1.000	
OCT	.	.	.900	
NOV	.	.	.600	
FLD CHLORINE (TOTAL) (MG/L)			DET'N LIMIT = N/A	GUIDELINE = N/A
JAN	.	.	.900	
FEB	.	.	1.200	
MAR	.	.	.900	
APR	.	.	.900	
MAY	.	.	.900	
JUN	.	.	1.000	
JUL	.	.	1.200	
AUG	.	.	.800	
SEP	.	.	1.200	
OCT	.	.	1.000	
NOV	.	.	.700	
FLD PH (DIMNSLESS)			DET'N LIMIT = N/A	GUIDELINE = 6.5-8.5(A4)
JAN	7.400	7.400	7.400	
FEB	7.500	7.500	7.500	
MAR	7.500	7.500	7.500	
APR	7.500	7.500	7.500	
MAY	7.500	7.500	7.500	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY 1989

	RAW 5	RAW 6	TREATED
JUN	7.400	7.400	7.400
JUL	7.500	7.500	7.500
AUG	7.500	7.500	7.500
SEP	7.500	7.500	7.500
OCT	7.500	7.500	7.500
NOV	7.400	7.400	7.400

FLD TEMPERATURE (DEG.C) DET'N LIMIT = N/A GUIDELINE = 15 (A1)

JAN	8.900	8.000	8.000
FEB	9.000	8.000	8.000
MAR	8.000	8.000	8.000
APR	8.000	8.000	8.000
MAY	8.200	8.200	8.500
JUN	8.000	7.000	9.000
JUL	8.000	8.000	8.000
AUG	8.000	8.000	9.000
SEP	8.000	8.000	9.000
OCT	8.000	8.500	8.500
NOV	4.000	4.000	4.000

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY 1989

	RAW 5	RAW 6	TREATED	
CHEMISTRY (LAB)				
ALKALINITY (MG/L)		DET'N LIMIT = .200		GUIDELINE = 30-500 (A4)
JAN	243.500	239.700	239.800	
FEB	237.600	229.200	232.600	
MAR	204.400	208.000	224.500	
APR	232.800	225.500	222.400	
MAY	200.000	218.500	212.000	
JUN	204.700	193.400	190.100	
JUL	237.900	229.300	234.900	
AUG	231.200	229.100	217.700	
SEP	227.200	226.900	226.600	
OCT	237.900	227.600	231.700	
NOV	235.400	227.600	237.600	
CALCIUM (MG/L)		DET'N LIMIT = .100		GUIDELINE = 100 (F2)
JAN	88.400	81.600	83.000	
FEB	89.000	82.000	84.600	
MAR	82.000	81.800	89.000	
APR	82.200	79.600	81.400	
MAY	90.200	85.600	89.600	
JUN	87.000	81.000	82.000	
JUL	91.400	87.400	88.400	
AUG	88.000	81.200	86.400	
SEP	87.400	84.800	87.000	
OCT	92.000	85.400	89.000	
NOV	89.800	82.000	86.200	
CHLORIDE (MG/L)		DET'N LIMIT = .200		GUIDELINE = 250 (A3)
JAN	21.200	5.600	15.900	
FEB	20.400	5.900	15.300	
MAR	20.300	6.100	15.100	
APR	21.600	5.900	15.300	
MAY	22.500	6.900	17.000	
JUN	22.700	6.500	15.800	
JUL	20.200	6.400	15.400	
AUG	22.400	6.700	16.500	
SEP	24.500	6.800	17.300	
OCT	24.800	6.600	17.400	
NOV	23.400	5.700	17.300	
COLOUR (HZU)		DET'N LIMIT = .5		GUIDELINE = 5.0 (A3)
JAN	BDL	BDL	BDL	
FEB	BDL	BDL	BDL	
MAR	.500 <T	1.000 <T	1.000 <T	
APR	.500 <T	1.000 <T	.500 <T	
MAY	.500 <T	1.000 <T	1.000 <T	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY 1989

	RAW 5	RAW 6	TREATED	
JUN	BDL	.500 <T	BDL	
JUL	BDL	.500 <T	BDL	
AUG	.500 <T	1.000 <T	.500 <T	
SEP	.500 <T	.500 <T	BDL	
OCT	.500 <T	.500 <T	.500 <T	
NOV	BDL	6.000	BDL	
CONDUCTIVITY (UMHO/CM)		DET'N LIMIT = 1		GUIDELINE = 400 (F2)
JAN	565	497	538	
FEB	562	501	537	
MAR	521	458	528	
APR	570	509	535	
MAY	483	494	502	
JUN	519	462	475	
JUL	552	505	536	
AUG	548	502	509	
SEP	563	511	541	
OCT	585	514	554	
NOV	570	501	551	
FLUORIDE (MG/L)		DET'N LIMIT = .01		GUIDELINE = 2.400 (A1)
JAN	.060	.060	.060	
FEB	.040 <T	.060	.040 <T	
MAR	.040 <T	.060	.040 <T	
APR	.040 <T	.040 <T	.040 <T	
MAY	.060	.020 <T	.020 <T	
JUN	.020 <T	.020 <T	.020 <T	
JUL	.040 <T	.060	.060	
AUG	.040 <T	.060	.060	
SEP	.040 <T	.040 <T	.040 <T	
OCT	.040 <T	.040 <T	.040 <T	
NOV	.040 <T	.060	.040 <T	
HARDNESS (MG/L)		DET'N LIMIT = .500		GUIDELINE = 80-100 (A4)
JAN	287.000	268.000	272.000	
FEB	288.000	267.000	275.000	
MAR	269.000	269.000	289.000	
APR	274.000	265.000	271.000	
MAY	292.000	279.000	290.000	
JUN	290.000	270.000	274.000	
JUL	295.000	284.000	288.000	
AUG	288.000	270.000	284.000	
SEP	285.000	278.000	284.000	
OCT	298.000	279.000	290.000	
NOV	294.000	269.000	282.000	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY 1989

	RAW 5	RAW 6	TREATED	
IONCAL (DMNSLESS)			DET'N LIMIT = N/A	GUIDELINE = N/A
JAN	2.983	4.486	5.911	
FEB	.126	.803	1.268	
MAR	5.076	7.994	5.570	
APR	4.185	1.782	.619	
MAY	12.160	4.543	8.894	
JUN	8.199	8.396	10.080	
JUL	1.984	2.413	.682	
AUG	.091	2.996	3.820	
SEP	.154	.526	.964	
OCT	.202	1.230	1.108	
NOV	.142	1.051	3.339	
LANGELIERS INDEX (DMNSLESS)			DET'N LIMIT = N/A	GUIDELINE = N/A
JAN	.906	.401	.604	
FEB	1.038	.943	.959	
MAR	1.001	1.104	1.307	
APR	1.014	1.002	.953	
MAY	1.167	1.162	1.118	
JUN	.848	.848	.844	
JUL	1.171	1.131	1.133	
AUG	1.083	1.119	1.163	
SEP	1.031	1.172	1.140	
OCT	1.171	1.166	1.148	
NOV	1.077	1.080	1.176	
MAGNESIUM (MG/L)			DET'N LIMIT = .050	GUIDELINE = 30 (F2)
JAN	16.000	15.500	15.800	
FEB	16.000	15.200	15.600	
MAR	15.700	15.700	16.200	
APR	16.800	16.100	16.400	
MAY	16.100	15.900	16.100	
JUN	16.500	15.900	16.300	
JUL	16.400	16.000	16.400	
AUG	16.600	16.400	16.600	
SEP	16.300	16.000	16.300	
OCT	16.500	15.900	16.500	
NOV	16.800	15.600	16.200	
SODIUM (MG/L)			DET'N LIMIT = .200	GUIDELINE = 200 (C3)
JAN	8.400	3.000	6.000	
FEB	7.600	2.200	5.600	
MAR	8.000	3.000	5.800	
APR	8.000	3.000	6.000	
MAY	7.400	3.000	6.000	
JUN	7.800	3.200	5.800	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY 1989

	RAW 5	RAW 6	TREATED	
JUL	7.400	3.000	5.800	
AUG	7.600	3.200	5.600	
SEP	8.200	3.400	6.000	
OCT	8.400	3.400	6.200	
NOV	7.800	2.800	6.200	
AMMONIUM TOTAL (MG/L)		DET'N LIMIT = 0.002		GUIDELINE = .05 (F2)
JAN	.012	.008 <T	.004 <T	
FEB	BDL	BDL	BDL	
MAR	BDL	BDL	BDL	
APR	BDL	BDL	BDL	
MAY	BDL	BDL	BDL	
JUN	BDL	BDL	BDL	
JUL	.006 <T	.002 <T	BDL	
AUG	BDL	BDL	BDL	
SEP	BDL	BDL	BDL	
OCT	BDL	BDL	BDL	
NOV	BDL	BDL	BDL	
NITRITE (MG/L)		DET'N LIMIT = 0.001		GUIDELINE = 1.000 (A1)
JAN	.003 <T	.001 <T	BDL	
FEB	.002 <T	.002 <T	.001 <T	
MAR	.004 <T	.003 <T	BDL	
APR	.003 <T	.003 <T	.001 <T	
MAY	.001 <T	.002 <T	BDL	
JUN	.002 <T	.003 <T	BDL	
JUL	.007	.005	.001 <T	
AUG	BDL	BDL	BDL	
SEP	.001 <T	.002 <T	BDL	
OCT	BDL	.001 <T	BDL	
NOV	.001 <T	.001 <T	BDL	
TOTAL NITRATES (MG/L)		DET'N LIMIT = .020		GUIDELINE = 10.000 (A1)
JAN	2.060	2.340	2.160	
FEB	1.930	2.230	2.090	
MAR	2.020	2.270	2.140	
APR	2.040	2.440	2.270	
MAY	1.960	2.510	2.160	
JUN	2.440	2.850	2.540	
JUL	1.860	2.460	2.160	
AUG	2.040	2.320	2.260	
SEP	2.310	2.430	2.240	
OCT	2.210	2.310	2.320	
NOV	2.490	2.330	2.300	
NITROGEN TOT KJELD (MG/L)		DET'N LIMIT = .020		GUIDELINE = N/A

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY 1989

	RAW 5	RAW 6	TREATED	
JAN	.100	.080 <T	.070 <T	
FEB	.080 <T	.110	.080 <T	
MAR	.070 <T	.070 <T	.050 <T	
APR	.070 <T	.090 <T	.070 <T	
MAY	.070 <T	.230	.110	
JUN	.060 <T	.080 <T	.060 <T	
JUL	.070 <T	.080 <T	.060 <T	
AUG	.080 <T	.080 <T	.070 <T	
SEP	.070 <T	.080 <T	.060 <T	
OCT	.060 <T	.060 <T	.060 <T	
NOV	.080 <T	.090 <T	.070 <T	
PH (DMNSLESS)		DET'N LIMIT = N/A		GUIDELINE = 6.5-8.5(A4)
JAN	8.040	7.570	7.770	
FEB	8.180	8.130	8.130	
MAR	8.240	8.330	8.470	
APR	8.200	8.210	8.160	
MAY	8.370	8.350	8.300	
JUN	8.060	8.110	8.110	
JUL	8.300	8.290	8.280	
AUG	8.240	8.310	8.350	
SEP	8.200	8.350	8.310	
OCT	8.300	8.340	8.300	
NOV	8.220	8.270	8.330	
PHOSPHORUS FIL REACT (MG/L)		DET'N LIMIT = .0005		GUIDELINE = N/A
JAN	.000 <T	.002 <T	.001 <T	
FEB	BDL	.001 <T	.001 <T	
MAR	.000 <T	BDL	.001 <T	
APR	BDL	.000 <T	.000 <T	
MAY	.000 <T	.001 <T	.001 <T	
JUN	BDL	BDL	BDL	
JUL	BDL	BDL	BDL	
AUG	BDL	.001 <T	.001 <T	
SEP	.000 <T	.001 <T	.001 <T	
OCT	BDL	BDL	BDL	
NOV	BDL	BDL	.000 <T	
PHOSPHORUS TOTAL (MG/L)		DET'N LIMIT = .002		GUIDELINE = .40 (F2)
JAN	.002 <T	.003 <T	.002 <T	
FEB	BDL	BDL	BDL	
MAR	BDL	BDL	BDL	
APR	BDL	.002 <T	.002 <T	
MAY	BDL	BDL	BDL	
JUN	.013	.010	.011	
JUL	.002 <T	BDL	.002 <T	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY 1989

	RAW 5	RAW 6	TREATED
AUG	.003 <T	.003 <T	.003 <T
SEP	.002 <T	.002 <T	.002 <T
OCT	.002 <T	.003 <T	.002 <T
NOV	.002 <T	.002 <T	.002 <T
SULPHATE (MG/L)		DET'N LIMIT = .200	GUIDELINE = 500. (A3)
JAN	31.890	29.250	30.990
FEB	29.690	27.620	28.420
MAR	31.310	29.020	30.780
APR	32.080	32.460	32.100
MAY	34.000	34.580	33.150
JUN	32.410	38.980	35.440
JUL	31.370	35.140	33.040
AUG	32.810	37.080	34.770
SEP	32.230	36.730	34.050
OCT	33.050	35.880	34.280
NOV	31.250	32.570	33.580
TURBIDITY (FTU)		DET'N LIMIT = .02	GUIDELINE = 1.00 (A1)
JAN	1.030	.710	.460
FEB	.660	.700	.300
MAR	.550	.240 <T	.330
APR	.480	.840	.630
MAY	1.080	.720	.460
JUN	.620	.760	.820
JUL	.220	.450	.270
AUG	.930	.380	.600
SEP	.330	.340	.440
OCT	.200 <T	.650	.250 <T
NOV	.380	.460	.720

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW 5	RAW 6	TREATED	
METALS				
SILVER (UG/L)				DET'N LIMIT = .020 GUIDELINE = 50. (A1)
JAN	BDL	BDL	.040 <T	
FEB	BDL	BDL	.470 <T	
MAR	BDL	BDL	BDL	
APR	BDL	BDL	.110 <T	
MAY	.040 <T	.110 <T	.080 <T	
JUN	.060 <T	.050 <T	ISM	
JUL	BDL	BDL	BDL	
AUG	BDL	BDL	BDL	
SEP	BDL	BDL	BDL	
OCT	BDL	.030 <T	BDL	
NOV	BDL	BDL	BDL	
ALUMINUM (UG/L)				DET'N LIMIT = .050 GUIDELINE = 100.(A4)
JAN	3.248	2.320	2.668	
FEB	11.600	12.760	12.760	
MAR	8.816	9.164	9.164	
APR	11.600	11.600	12.760	
MAY	5.220	5.104	4.756	
JUN	11.000	12.000	ISM	
JUL	17.330	16.450	16.660	
AUG	16.000	15.000	15.000	
SEP	11.000	8.400	9.200	
OCT	6.100	5.900	6.000	
NOV	11.000	14.000	12.000	
ARSENIC (UG/L)				DET'N LIMIT = 0.050 GUIDELINE = 50.0 (A1)
JAN	.210 <T	.300 <T	.150 <T	
FEB	BDL	BDL	BDL	
MAR	.350 <T	.330 <T	.280 <T	
APR	.170 <T	.390 <T	.280 <T	
MAY	.330 <T	.180 <T	.560 <T	
JUN	BDL	BDL	ISM	
JUL	.500 <T	BDL	.220 <T	
AUG	.550 <T	.490 <T	.660 <T	
SEP	.580 <T	.390 <T	.550 <T	
OCT	.260 <T	.160 <T	.220 <T	
NOV	.240 <T	.140 <T	.350 <T	
BARIUM (UG/L)				DET'N LIMIT = 0.020 GUIDELINE = 1000. (A1)
JAN	82.000	69.000	74.000	
FEB	83.000	71.000	83.000	
MAR	72.000	63.000	68.000	
APR	81.000	71.000	76.000	
MAY	71.000	65.000	69.000	
JUN	81.000	78.000	ISM	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW 5	RAW 6	TREATED
JUL	89.730	73.630	83.920
AUG	79.000	70.000	77.000
SEP	81.000	71.000	75.000
OCT	80.000	74.000	78.000
NOV	71.000	65.000	76.000
BORON (UG/L)			DET'N LIMIT = 0.200 GUIDELINE = 5000. (A1)
JAN	63.000	63.000	64.000
FEB	34.000	120.000	140.000
MAR	150.000	160.000	180.000
APR	110.000	200.000	210.000
MAY	39.000	7.100 <T	5.400 <T
JUN	30.000	42.000	ISM
JUL	70.710	64.380	70.530
AUG	77.000	68.000	73.000
SEP	66.000	34.000	53.000
OCT	28.000	26.000	26.000
NOV	35.000	18.000 <T	25.000
BERYLLIUM (UG/L)			DET'N LIMIT = 0.010 GUIDELINE = N/A
JAN	.500 <T	.390 <T	.390 <T
FEB	BDL	.240 <T	.410 <T
MAR	.420 <T	.390 <T	.300 <T
APR	.040 <T	.090 <T	.140 <T
MAY	.120 <T	BDL	BDL
JUN	.090 <T	.060 <T	ISM
JUL	.250 <T	.270 <T	.260 <T
AUG	.130 <T	.260 <T	.110 <T
SEP	.150 <T	.060 <T	.150 <T
OCT	.070 <T	.070 <T	.090 <T
NOV	.150 <T	BDL	.030 <T
CADMIUM (UG/L)			DET'N LIMIT = 0.050 GUIDELINE = 5.000 (A1)
JAN	BDL	BDL	BDL
FEB	BDL	BDL	BDL
MAR	.070 <T	.200 <T	.090 <T
APR	BDL	BDL	BDL
MAY	BDL	BDL	BDL
JUN	BDL	BDL	ISM
JUL	.060 <T	.100 <T	BDL
AUG	.080 <T	BDL	BDL
SEP	BDL	BDL	BDL
OCT	BDL	BDL	BDL
NOV	BDL	BDL	BDL
COBALT (UG/L)			DET'N LIMIT = 0.020 GUIDELINE = N/A
JAN	.210 <T	.230 <T	.260 <T

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW 5	RAW 6	TREATED
FEB	.100 <T	.090 <T	.140 <T
MAR	.040 <T	BDL	BDL
APR	BDL	BDL	BDL
MAY	.280 <T	.280 <T	.150 <T
JUN	BDL	BDL	ISM
JUL	.180 <T	.140 <T	.240 <T
AUG	BDL	.050 <T	.060 <T
SEP	BDL	BDL	BDL
OCT	BDL	BDL	BDL
NOV	BDL	BDL	BDL

CHROMIUM (UG/L) DET'N LIMIT = 0.100 GUIDELINE = 50. (A1)

JAN	12.000	13.000	13.000
FEB	3.200	13.000	14.000
MAR	16.000	17.000	18.000
APR	3.700	6.800	6.900
MAY	13.000	1.300	.200 <T
JUN	7.100	10.000	ISM
JUL	13.980	12.510	13.720
AUG	12.000	11.000	11.000
SEP	17.000	8.500	14.000
OCT	8.100	7.700	7.300
NOV	4.900	1.400	2.800

COPPER (UG/L) DET'N LIMIT = .100 GUIDELINE = 1000 (A3)

JAN	.700 <T	.320 <T	.460 <T
FEB	.870 <T	.640 <T	.900 <T
MAR	.780 <T	.480 <T	.490 <T
APR	.600 <T	.690 <T	.620 <T
MAY	.490 <T	.500 <T	.400 <T
JUN	.730 <T	.700 <T	ISM
JUL	.630 <T	.710 <T	.680 <T
AUG	.620 <T	.720 <T	.730 <T
SEP	.390 <T	.610 <T	.650 <T
OCT	.430 <T	.600 <T	.600 <T
NOV	.470 <T	.510 <T	.600 <T

IRON (UG/L) DET'N LIMIT = 4.000 GUIDELINE = 300. (A3)

JAN	6.000 <T	10.000 <T	29.000 <T
FEB	10.000 <T	11.000 <T	BDL
MAR	BDL	BDL	BDL
APR	BDL	BDL	BDL
MAY	BDL	BDL	BDL
JUN	BDL	BDL	ISM
JUL	BDL	BDL	BDL
AUG	BDL	BDL	BDL
SEP	BDL	BDL	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW 5	RAW 6	TREATED
MERCURY (UG/L)			DET'N LIMIT = 0.010 GUIDELINE = 1.000 (A1)
JAN	BDL	BDL	BDL
FEB	.020 <T	.020 <T	.020 <T
MAR	BDL	BDL	BDL
APR	BDL	BDL	BDL
MAY	.020 <T	BDL	BDL
JUN	BDL	BDL	BDL
JUL	.030 <T	.030 <T	.030 <T
AUG	.020 <T	.020 <T	.020 <T
SEP	BDL	BDL	BDL
OCT	BDL	.020 <T	.020 <T
NOV	.020 <T	.020 <T	.030 <T
MANGANESE (UG/L)			DET'N LIMIT = .050 GUIDELINE = 50.0 (A3)
JAN	1.200	.540	.860
FEB	1.100	.480 <T	.620
MAR	.560	.480 <T	.640
APR	.220 <T	.260 <T	.250 <T
MAY	.560	.210 <T	.700
JUN	.510	.610	ISM
JUL	2.370	.610	1.240
AUG	.360 <T	.410 <T	.340 <T
SEP	.420 <T	.540	.430 <T
OCT	.310 <T	.560	.400 <T
NOV	BDL	.320 <T	.140 <T
MOLYBDENUM (UG/L)			DET'N LIMIT = 0.020 GUIDELINE = N/A
JAN	.400 <T	.530	.430 <T
FEB	.650	.730	.590
MAR	.750	.860	.900
APR	.610	.690	.590
MAY	.790	.780	.800
JUN	.630	.710	ISM
JUL	.760	.930	.800
AUG	.630	.770	.730
SEP	.500 <T	.660	.480 <T
OCT	.430 <T	.730	.550
NOV	.340 <T	.580	.480 <T
NICKEL (UG/L)			DET'N LIMIT = 0.100 GUIDELINE = 50. (F3)
JAN	1.600 <T	1.000 <T	1.400 <T
FEB	BDL	BDL	BDL
MAR	.670 <T	BDL	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW 5	RAW 6	TREATED	
APR	BDL	BDL	BDL	
MAY	4.800	4.100	3.500	
JUN	BDL	BDL	ISM	
JUL	2.340	2.630	2.590	
AUG	BDL	BDL	BDL	
SEP	BDL	BDL	BDL	
OCT	BDL	BDL	BDL	
NOV	BDL	BDL	BDL	
LEAD (UG/L)				DET'N LIMIT = 0.050 GUIDELINE = 50. (A1)
JAN	.120 <T	.100 <T	.080 <T	
FEB	.330	.280	.170 <T	
MAR	.290	.140 <T	.160 <T	
APR	BDL	.150 <T	.160 <T	
MAY	.650	.440	.760	
JUN	.190 <T	.030 <T	ISM	
JUL	.230	.130 <T	.130 <T	
AUG	.090 <T	.130 <T	.040 <T	
SEP	.030 <T	BDL	BDL	
OCT	.040 <T	BDL	.050 <T	
NOV	.040 <T	BDL	.040 <T	
ANTIMONY (UG/L)				DET'N LIMIT = .050 GUIDELINE = 146. (D4)
JAN	.280	.310	.230	
FEB	.640	.630	.650	
MAR	.670	.580	.540	
APR	.410	.410	.410	
MAY	.760	.830	.650	
JUN	.690	.700	ISM	
JUL	.660	.730	.530	
AUG	.580	.520	.590	
SEP	.450	.290	.360	
OCT	.380	.360	.330	
NOV	.290	.290	.330	
SELENIUM (UG/L)				DET'N LIMIT = 0.200 GUIDELINE = 10. (A1)
JAN	1.000 <T	BDL	.790 <T	
FEB	3.000 <T	2.200 <T	.940 <T	
MAR	BDL	.880 <T	1.300 <T	
APR	3.800 <T	1.100 <T	3.000 <T	
MAY	2.300 <T	2.800 <T	6.600 <T	
JUN	BDL	1.100 <T	ISM	
JUL	BDL	BDL	1.660 <T	
AUG	BDL	BDL	BDL	
SEP	BDL	BDL	BDL	
OCT	BDL	BDL	BDL	
NOV	BDL	BDL	1.200 <T	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM	
	RAW 5	RAW 6	TREATED	
STRONTIUM (UG/L)				DET'N LIMIT = .050 GUIDELINE = N/A
JAN	170.000	150.000	160.000	
FEB	180.000	160.000	170.000	
MAR	180.000	160.000	170.000	
APR	190.000	170.000	180.000	
MAY	180.000	160.000	170.000	
JUN	190.000	180.000	ISM	
JUL	199.000	177.000	188.000	
AUG	190.000	160.000	180.000	
SEP	210.000	180.000	190.000	
OCT	200.000	170.000	190.000	
NOV	190.000	150.000	180.000	
TITANIUM (UG/L)				DET'N LIMIT = .050 GUIDELINE = N/A
JAN	13.000	12.000	13.000	
FEB	12.000	12.000	12.000	
MAR	13.000	14.000	13.000	
APR	14.000	13.000	15.000	
MAY	15.000	14.000	13.000	
JUN	19.000	18.000	ISM	
JUL	19.820	18.980	18.170	
AUG	17.000	17.000	16.000	
SEP	11.000	9.200	9.700	
OCT	14.000	14.000	15.000	
NOV	12.000	11.000	11.000	
THALLIUM (UG/L)				DET'N LIMIT = .010 GUIDELINE = 13. (D4)
JAN	.040 <T	.020 <T	.030 <T	
FEB	BDL	BDL	BDL	
MAR	BDL	BDL	BDL	
APR	.030 <T	.080 <T	BDL	
MAY	.200 <T	.100 <T	.120 <T	
JUN	BDL	BDL	ISM	
JUL	.070 <T	.090 <T	.030 <T	
AUG	BDL	BDL	BDL	
SEP	BDL	BDL	BDL	
OCT	.040 <T	.020 <T	BDL	
NOV	BDL	BDL	BDL	
URANIUM (UG/L)				DET'N LIMIT = .020 GUIDELINE = 100.(B1)
JAN	2.400	2.900	2.600	
FEB	2.500	3.300	3.100	
MAR	2.100	2.200	2.000	
APR	2.500	2.900	2.900	
MAY	2.200	2.800	2.300	
JUN	2.800	3.600	ISM	
JUL	2.610	2.960	2.790	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW 5	RAW 6	TREATED
AUG	2.600	2.900	2.900
SEP	1.200	2.500	2.500
OCT	2.500	2.800	2.800
NOV	2.500	3.200	2.600

VANADIUM (UG/L) DET'N LIMIT = .050 GUIDELINE = N/A

JAN	.130 <T	.070 <T	.100 <T
FEB	.140 <T	.170 <T	.180 <T
MAR	.220 <T	.250 <T	.200 <T
APR	.130 <T	.160 <T	.180 <T
MAY	.310 <T	.250 <T	.280 <T
JUN	.110 <T	.130 <T	ISM
JUL	.270 <T	.200 <T	.210 <T
AUG	.250 <T	.230 <T	.270 <T
SEP	.350 <T	.150 <T	.290 <T
OCT	.140 <T	.120 <T	.130 <T
NOV	.230 <T	.170 <T	.260 <T

ZINC (UG/L) DET'N LIMIT = .001 GUIDELINE = 5000. (A3)

JAN	1.900	.880 <T	1.000 <T
FEB	1.800	.660 <T	.800 <T
MAR	1.400	1.300	1.500
APR	1.400	1.300	1.300
MAY	1.900	1.600	1.600
JUN	2.000	2.000	ISM
JUL	2.350	2.140	2.060
AUG	1.600	1.400	1.500
SEP	.790 <T	1.300	.830 <T
OCT	1.000 <T	.970 <T	1.200
NOV	.900	.920 <T	.900 <T

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY 1989

	RAW 5	RAW 6	TREATED
CHLOROAROMATICS			
HEXACHLOROETHANE (NG/L)		DET'N LIMIT = 1.000	GUIDELINE = 1900 (D4)
JAN	BDL	BDL	BDL
FEB	BDL	BDL	ILA
MAR	BDL	BDL	BDL
APR	BDL	BDL	12.000
MAY	BDL	IRE	BDL
JUN	BDL	BDL	BDL
JUL	BDL	BDL	BDL
AUG	BDL	BDL	BDL
SEP	BDL	BDL	BDL
OCT	BDL	BDL	BDL
NOV	ILA	BDL	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY 1989

	RAW 5	RAW 6	TREATED
PESTICIDES & PCB			
ALPHA BHC (NG/L)		DET'N LIMIT = 1.000	GUIDELINE = 700 (G)
JAN	BDL	BDL	BDL
FEB	BDL	BDL	ILA
MAR	BDL	BDL	BDL
APR	BDL	BDL	BDL
MAY	BDL	IRE	BDL
JUN	BDL	BDL	BDL
JUL	BDL	BDL	BDL
AUG	BDL	BDL	BDL
SEP	2.000 <T	BDL	BDL
OCT	BDL	BDL	BDL
NOV	ILA	BDL	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY 1989

	RAW 5	RAW 6	TREATED
PHENOLICS (UG/L PHENOLICS)		DET'N LIMIT = 0.2	GUIDELINE = 2.00 (A3)
JAN	.800	BDL	.600 <T
FEB	.600 <T	.600 <T	BDL
MAR	.600 <T	BDL	BDL
APR	BDL	BDL	BDL
MAY	2.800	1.600	.800 <T
JUN	.600 <T	.600 <T	BDL
JUL	BDL	BDL	.600 <T
AUG	.600 <T	1.000	5.600
SEP	1.000	3.000	BDL
OCT	.600 <T	.800 <T	BDL
NOV	1.000	BDL	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW 5	RAW 6	TREATED
VOLATILES			
TOLUENE (UG/L)			DET'N LIMIT = .050 GUIDELINE = 24.0 (B4)
JAN	BDL	BDL	.050 <T
FEB	BDL	BDL	.500 <T
MAR	BDL	BDL	BDL
APR	BDL	BDL	.050 <T
MAY	BDL	.150 <T	.300 <T
JUN	BDL	.100 <T	BDL
JUL	.200 <T	BDL	.100 <T
AUG	BDL	BDL	BDL
SEP	BDL	IU	BDL
OCT	BDL	BDL	IAR
	.	.	BDL
NOV	BDL	BDL	BDL
ETHYLBENZENE (UG/L)			DET'N LIMIT = .050 GUIDELINE = 2.4 (B4)
JAN	BDL	.050 <T	.050 <T
FEB	.050 <T	BDL	BDL
MAR	BDL	BDL	BDL
APR	.050 <T	.050 <T	.050 <T
MAY	BDL	1.750	2.300
JUN	.050 <T	.050 <T	BDL
JUL	.050 <T	BDL	BDL
AUG	BDL	BDL	BDL
SEP	BDL	IU	BDL
OCT	BDL	BDL	IAR
	.	.	BDL
NOV	BDL	BDL	BDL
M-XYLENE (UG/L)			DET'N LIMIT = .100 GUIDELINE = 300 (B4)
JAN	BDL	BDL	BDL
FEB	BDL	BDL	BDL
MAR	BDL	BDL	BDL
APR	BDL	BDL	BDL
MAY	BDL	BDL	8.600 RMP
JUN	BDL	BDL	BDL
JUL	.100 <T	BDL	BDL
AUG	BDL	BDL	BDL
SEP	BDL	IU	BDL
OCT	BDL	BDL	IAR
	.	.	BDL
NOV	BDL	BDL	BDL
O-XYLENE (UG/L)			DET'N LIMIT = .050 GUIDELINE = 300 (B4)
JAN	BDL	BDL	BDL
FEB	BDL	BDL	BDL
MAR	BDL	BDL	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW 5	RAW 6	TREATED
APR	BDL	BDL	BDL
MAY	.050 <T	2.900	3.650
JUN	BDL	.050 <T	BDL
JUL	BDL	BDL	BDL
AUG	BDL	BDL	BDL
SEP	BDL	IU	BDL
OCT	BDL	BDL	IAR
	.	.	BDL
NOV	BDL	BDL	BDL

STYRENE (UG/L) DET'N LIMIT = .050 GUIDELINE = 46.5 (D2)

JAN	.200 <T	.350 <T	BDL
FEB	BDL	.100 <T	.100 <T
MAR	BDL	.150 <T	BDL
APR	.350 <T	.300 <T	BDL
MAY	.100 <T	BDL	BDL
JUN	.150 <T	.100 <T	.100 <T
JUL	.200 <T	.100 <T	BDL
AUG	.200 <T	.100 <T	BDL
SEP	BDL	IU	.150 <T
OCT	BDL	BDL	IAR
	.	.	BDL
NOV	.200 <T	.050 <T	BDL

CHLOROFORM (UG/L) DET'N LIMIT = .100 GUIDELINE = 350 (A1+)

JAN	BDL	BDL	3.300
FEB	BDL	BDL	.900 <T
MAR	BDL	BDL	8.400
APR	BDL	BDL	11.800
MAY	BDL	BDL	5.100
JUN	BDL	BDL	2.000
JUL	BDL	BDL	9.400
AUG	BDL	BDL	2.900
SEP	BDL	IU	1.900
OCT	BDL	BDL	IAR
	.	.	1.600
NOV	BDL	BDL	3.600

111, TRICHLOROETHANE (UG/L) DET'N LIMIT = .020 GUIDELINE = 200 (D1)

JAN	BDL	BDL	BDL
FEB	BDL	.020 <T	.060 <T
MAR	BDL	.040 <T	BDL
APR	BDL	BDL	BDL
MAY	BDL	BDL	BDL
JUN	.120 <T	.140 <T	BDL
JUL	BDL	BDL	BDL
AUG	BDL	BDL	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW 5	RAW 6	TREATED
SEP	BDL	IU	BDL
OCT	BDL	BDL	IAR
	.	.	BDL
NOV	BDL	BDL	BDL

DICHLOROBROMOMETHANE (UG/L) DET'N LIMIT = .050 GUIDELINE = 350 (A1+)

JAN	BDL	BDL	4.450
FEB	BDL	BDL	1.750
MAR	BDL	BDL	5.000
APR	BDL	BDL	6.600
MAY	BDL	BDL	4.300
JUN	BDL	BDL	3.550
JUL	BDL	BDL	6.200
AUG	BDL	BDL	3.850
SEP	BDL	IU	2.100
OCT	BDL	BDL	IAR
	.	.	2.400
NOV	BDL	BDL	3.850

CHLORODIBROMOMETHANE (UG/L) DET'N LIMIT = .100 GUIDELINE = 350 (A1+)

JAN	BDL	BDL	5.600
FEB	BDL	BDL	2.300
MAR	BDL	BDL	4.500
APR	BDL	BDL	6.900
MAY	BDL	BDL	5.200
JUN	BDL	BDL	5.100
JUL	BDL	BDL	6.600
AUG	BDL	BDL	5.400
SEP	BDL	IU	2.900
OCT	BDL	BDL	IAR
	.	.	3.400
NOV	BDL	BDL	5.200

BROMOFORM (UG/L) DET'N LIMIT = .200 GUIDELINE = 350 (A1+)

JAN	BDL	BDL	1.600 <T
FEB	BDL	BDL	.800 <T
MAR	BDL	BDL	1.400 <T
APR	BDL	BDL	2.000 <T
MAY	BDL	BDL	1.400 <T
JUN	BDL	BDL	1.400 <T
JUL	BDL	BDL	1.800 <T
AUG	BDL	BDL	2.000
SEP	BDL	IU	1.000 <T
OCT	BDL	BDL	IAR
	.	.	1.600 <T
NOV	BDL	BDL	1.800 <T

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM STOUFFVILLE WELL SUPPLY 1989

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM
	RAW 5	RAW 6	TREATED
TOTL TRIHALOMETHANES (UG/L)			DET'N LIMIT = .500 GUIDELINE = 350 (A1)
JAN	BDL	BDL	14.950
FEB	BDL	BDL	5.750
MAR	BDL	BDL	19.300
APR	BDL	BDL	27.300
MAY	BDL	BDL	16.000
JUN	BDL	BDL	12.050
JUL	BDL	BDL	24.000
AUG	BDL	BDL	14.150
SEP	BDL	IU	7.900
OCT	BDL	BDL	IAR
	.	.	9.000
NOV	BDL	BDL	14.450

TRACE LEVELS OF TOLUENE ARE LABORATORY ARTIFACTS DERIVED FROM THE ANALYTICAL METHODOLOGY.

TRACE LEVELS OF STYRENE ARE CONSIDERED TO BE LABORATORY ARTIFACTS RESULTING FROM THE LABORATORY SHIPPING CONTAINERS.

Table 6

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
BACTERIOLOGICAL			
FECAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	0 (A1)
STANDARD PLATE COUNT MEMBRANE FILTRATION	CT/ML	0	500/ML (A1)
TOTAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	5/100mL (A1)
TOTAL COLIFORM BACKGROUND MF	CT/100ML	0	N/A
CHLOROAROMATICS			
HEXACHLOROBUTADIENE	NG/L	1.000	450. (D4)
1,2,3-TRICHLOROBENZENE	NG/L	5.000	10000 (I)
1,2,3,4-TETRACHLOROBENZENE	NG/L	1.000	10000 (I)
1,2,3,5-TETRACHLOROBENZENE	NG/L	1.000	10000 (I)
1,2,4-TRICHLOROBENZENE	NG/L	5.000	10000 (I)
1,2,4,5-TETRACHLOROBENZENE	NG/L	1.000	38000 (D4)
1,3,5-TRICHLOROBENZENE	NG/L	5.000	10000 (D4)
HEXACHLOROBENZENE	NG/L	1.0	10. (C1)
HEXACHLOROETHANE	NG/L	1.000	1900. (D4)
OCTACHLOROSTYRENE	NG/L	1.000	N/A
PENTACHLOROBENZENE	NG/L	1.000	74000 (D4)
2,3,6-TRICHLOROTOLUENE	NG/L	5.000	N/A
2,4,5-TRICHLOROTOLUENE	NG/L	5.000	N/A
2,6,A-TRICHLOROTOLUENE	NG/L	5.000	N/A
CHLOROPHENOLS			
2,3,4-TRICHLOROPHENOL	NG/L	50.	N/A
2,3,4,5-TETRACHLOROPHENOL	NG/L	50.	N/A
2,3,5,6-TETRACHLOROPHENOL	NG/L	50.	N/A
2,4,5-TRICHLOROPHENOL	NG/L	50.	2600000 (D4)
2,4,6-TRICHLOROPHENOL	NG/L	50.	2000. (B4)
PENTACHLOROPHENOL	NG/L	50.	30000. (B4)
CHEMISTRY (FLD)			
FIELD COMBINED CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD FREE CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD TOTAL CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD PH	DMSNLESS	N/A	6.5-8.5 (A4)
FIELD TEMPERATURE	^{o}C	N/A	<15 ^{o}C (A1)
FIELD TURBIDITY	FTU	N/A	1.0 (A1)
CHEMISTRY (LAB)			
ALKALINITY	MG/L	.200	30-500 (A4)
CALCIUM	MG/L	.100	100. (F2)
CYANIDE	MG/L	.001	.20 (A1)
CHLORIDE	MG/L	.200	250. (A3)
COLOUR	TCU	.5	5.0 (A3)
CONDUCTIVITY	UMHO/CM	1.	400. (F2)
FLUORIDE	MG/L	.01	2.4 (A1)
HARDNESS	MG/L	.50	80-100 (A4)
MAGNESIUM	MG/L	.05	30. (F2)

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
NITRITE	MG/L	.001	1.0 (A1)
TOTAL NITRATES	MG/L	.02	10. (A1)
NITROGEN TOTAL KJELDAHL	MG/L	.02	N/A
PH	DMSNLESS	N/A	6.5-8.5(A4)
PHOSPHORUS FIL REACT	MG/L	.0005	N/A
PHOSPHORUS TOTAL	MG/L	.002	.40(F2)
SULPHATE	MG/L	.200	500. (A3)
TOTAL SOLIDS	MG/L	1.	500. (A3)
TURBIDITY	FTU	.02	1.0 (A1)
METALS			
ALUMINUM	UG/L	.050	100. (A4)
ANTIMONY	UG/L	.050	10. (F3)
ARSENIC	UG/L	.050	50. (A1)
BARIUM	UG/L	.020	1000. (A1)
BORON	UG/L	.200	5000. (A1)
BERYLLIUM	UG/L	.010	0.20 (H)
CADMIUM	UG/L	.050	5.0 (A1)
COBALT	UG/L	.020	1000. (H)
CHROMIUM	UG/L	.100	50. (A1)
COPPER	UG/L	.100	1000. (A3)
IRON	UG/L	5.0	300. (A3)
MERCURY	UG/L	.01	1.0 (A1)
MANGANESE	UG/L	.050	50. (A3)
MOLYBDENUM	UG/L	.020	500. (H)
NICKEL	UG/L	.100	50. (F3)
LEAD	UG/L	.020	50. (A1)
SELENIUM	UG/L	.200	10. (A1)
SILVER	UG/L	.020	50. (A1)
STRONTIUM	UG/L	.100	2000. (H)
THALLIUM	UG/L	.010	13. (D4)
TITANIUM	UG/L	.100	N/A
URANIUM	UG/L	.020	20. (A2)
VANADIUM	UG/L	.020	100. (H)
ZINC	UG/L	.020	5000. (A3)
PHENOLICS			
PHENOLICS (UNFILTERED REACTIVE)	UG/L	.2	2.0 (A3)
PESTICIDES & PCB			
ALDRIN	NG/L	1.0	700. (A1)
AMETRINE	NG/L	50.	300000. (D3)
ATRAZINE	NG/L	50.	60000. (B3)
ALPHA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	700. (G)
BETA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	300. (G)
GAMMA HEXACHLOROCYCLOHEXANE(LINDANE)	NG/L	1.0	4000. (A1)
ALPHA CHLORDANE	NG/L	2.0	7000. (A1)
GAMMA CHLORDANE	NG/L	2.0	7000. (A1)
BLADEX	NG/L	100.	10000. (B3)
DIELDRIN	NG/L	2.0	700. (A1)
METHOXYCHLOR	NG/L	5.0	900000. (B1)
ENDOSULFAN 1 (THIODAN I)	NG/L	2.0	74000. (D4)
ENDOSULFAN 2 (THIODAN II)	NG/L	4.0	74000. (D4)
ENDRIN	NG/L	4.0	200. (A1)
ENDOSULFAN SULPHATE(THIODAN SULPHATE)	NG/L	4.0	N/A

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE	
HEPTACHLOR EPOXIDE	NG/L	1.0	3000.	(A1)
HEPTACHLOR	NG/L	1.0	3000.	(A1)
METOLACHLOR	NG/L	500.	50000.	(B3)
MIREX	NG/L	5.0	N/A	
OXYCHLORDANE	NG/L	2.0	N/A	
O,P-DDT	NG/L	5.0	30000.	(A1)
PCB	NG/L	20.0	3000.	(A2)
O,P-DDD	NG/L	5.0	N/A	
PPDDE	NG/L	1.0	30000.	(A1)
PPDDT	NG/L	5.0	30000.	(A1)
ATRATONE	NG/L	50.	N/A	
ALACHLOR	NG/L	500.	35000.	(D2)
PROMETONE	NG/L	50.	52500.	(D3)
PROPAZINE	NG/L	50.	16000.	(D2)
PROMETRYNE	NG/L	50.	1000.	(B3)
SENCOR (METRIBUZIN)	NG/L	100.	80000.	(B2)
SIMAZINE	NG/L	50.	10000.	(B3)
POLYAROMATIC HYDROCARBONS				
PHENANTHRENE	NG/L	10.0	N/A	
ANTHRACENE	NG/L	1.0	N/A	
FLUORANTHENE	NG/L	20.0	42000.	(D4)
PYRENE	NG/L	20.0	N/A	
BENZO(A)ANTHRACENE	NG/L	20.0	N/A	
CHRYSENE	NG/L	50.0	N/A	
DIMETHYL BENZO(A)ANTHRACENE	NG/L	5.0	N/A	
BENZO(E)PYRENE	NG/L	50.0	N/A	
BENZO(B)FLUORANTHENE	NG/L	10.0	N/A	
PERYLENE	NG/L	10.0	N/A	
BENZO(K)FLUORANTHENE	NG/L	1.0	N/A	
BENZO(A)PYRENE	NG/L	5.0	10.	(B1)
BENZO(G,H,I)PERYLENE	NG/L	20.0	N/A	
DIBENZO(A,H)ANTHRACENE	NG/L	10.0	N/A	
INDENO(1,2,3-C,D)PYRENE	NG/L	20.0	N/A	
BENZO(B)CHRYSENE	NG/L	2.0	N/A	
CORONENE	NG/L	10.0	N/A	
SPECIFIC PESTICIDES				
TOXAPHENE	NG/L	N/A	5000.	(A1)
2,4,5-TRICHLOROBUTYRIC ACID (2,4,5-T)	NG/L	50.	200000.	(B4)
2,4-DICHLOROBUTYRIC ACID (2,4-D)	NG/L	100.	100000.	(A1)
2,4-DICHLORORPHENOXYBUTYRIC ACID	NG/L	200.	18000.	(B3)
2,4-D PROPIONIC ACID	NG/L	100.	N/A	
DICAMBA	NG/L	100.	120000.	(B1)
PICLORAM	NG/L	100.	190000.	(B3)
SILVEX (2,4,5-TP)	NG/L	50.	10000.	(A1)
DIAZINON	NG/L	20.	20000.	(B1)
DICHLOROVOS	NG/L	20.	N/A	
DURSBAN	NG/L	20.	N/A	
ETHION	NG/L	20.	35000.	(G)
GUTHION(AZINPHOSMETHYL)	NG/L	N/A	20000.	(B1)
MALATHION	NG/L	20.	190000.	(B1)
MEVINPHOS	NG/L	20.	N/A	
METHYL PARATHION	NG/L	50.	7000.	(A1)
METHYLTRITHION	NG/L	20.	N/A	

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
PARATHION	NG/L	20.	50000. (B1)
PHORATE (THIMET)	NG/L	20.	2000. (B3)
RELDAN	NG/L	20.	N/A
RONNEL	NG/L	20.	N/A
AMINOCARB	NG/L	N/A	N/A
BENOMYL	NG/L	N/A	N/A
BUX (METALKAMATE)	NG/L	2000.	N/A
CARBOFURAN	NG/L	2000.	90000. (B1)
CICP (CHLORPROPHAM)	NG/L	2000.	350000. (G)
DIALLATE	NG/L	2000.	30000. (H)
EPTAM	NG/L	2000.	N/A
IPC	NG/L	2000.	N/A
PROPOXUR (BAYGON)	NG/L	2000.	90000. (G)
SEVIN (CARBARYL)	NG/L	200.	90000. (B1)
SUTAN (BUTYLATE)	NG/L	2000.	245000. (D3)
VOLATILES			
BENZENE	UG/L	.050	5.0 (B1)
TOLUENE	UG/L	.050	24.0 (B4)
ETHYLBENZENE	UG/L	.050	2.4 (B4)
PARA-XYLENE	UG/L	.100	300. (B4)
META-XYLENE	UG/L	.100	300. (B4)
ORTHO-XYLENE	UG/L	.050	300. (B4)
1,1-DICHLOROETHYLENE	UG/L	.100	7.0 (D1)
ETHLYENE DIBROMIDE	UG/L	.05	.05 G)
METHYLENE CHLORIDE	UG/L	.500	50. (B1)
TRANS-1,2-DICHLOROETHYLENE	UG/L	.100	70. (D5)
1,1-DICHLOROETHANE	UG/L	.100	N/A
CHLOROFORM	UG/L	.100	350. (A1+)
1,1,1-TRICHLOROETHANE	UG/L	.020	200. (D1)
1,2-DICHLOROETHANE	UG/L	.050	5.0 (D1)
CARBON TETRACHLORIDE	UG/L	.200	5.0 (B1)
1,2-DICHLOROPROPANE	UG/L	.050	6.0 (D5)
TRICHLOROETHYLENE	UG/L	.100	50. (B1)
DICHLOROBROMOMETHANE	UG/L	.050	350. (A1+)
1,1,2-TRICHLOROETHANE	UG/L	.050	.60(D4)
CHLORODIBROMOMETHANE	UG/L	.100	350. (A1+)
TETRACHLOROETHYLENE	UG/L	.050	10.0 (C2)
BROMOFORM	UG/L	.200	350. (A1+)
1,1,2,2-TETRACHLOROETHANE	UG/L	.050	0.17(D4)
CHLOROBENZENE	UG/L	.100	60. (D5)
1,4-DICHLOROBENZENE	UG/L	.100	1.0 (B4)
1,3-DICHLOROBENZENE	UG/L	.100	130. (G)
1,2-DICHLOROBENZENE	UG/L	.050	3.0 (B4)
TRIFLUOROCHLOROTOLUENE	UG/L	.100	N/A
TOTAL TRIHALOMETHANES	UG/L	.500	350. (A1)
STYRENE	UG/L	.05	140. (D5)